

CHEMISTRY OF THE BARNADESIINAE (ASTERACEAE)

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Cladistic analysis [1] as well as chloroplast DNA systematics [2] has led to the suggestion that the subtribe Barnadesiinae of the Asteraceous tribe Mutisieae represents the most ancient surviving divergent element of the present-day members of the family. Separation of the subtribe from the Mutisieae has been suggested, and the group has been proposed as a subfamily [1].

Although the Asteraceae as a family is notable for a rich secondary metabolite chemistry, all representatives of the Barnadesiinae thus far surveyed have only triterpenes, a type of secondary metabolites (Table 1) which is widespread in all higher plant families. The aerial parts of nearly all studied species afforded lupeol, lupeyl acetate and further triterpenes which have not been investigated in detail.

While most species of genera placed in the other subtribes of the Mutisieae contain characteristic compounds [4,5], some genera of the Gochnatiinae (Chimantaea Maquire, Steyerl. & Wurdack, Cyclolepis Don, Hyalis Don, Oldenburgia Less., Quelchia N.E. Brown, Stenopadus Blake, Stomatochaeta (Blake) Maquire & Wurdack, Urmenetea Phil., Table 2) also gave only triterpenes, but most representatives of the genera of this subtribe afforded sesquiterpene lactones [6]. It seems of interest in view of the proposed paraphyletic nature of this subtribe [2].

Table 1 - Investigated species of the Barnadesiinae
Species (voucher and location in parenthesis)

Barnadesia arborea H.B.K. (RMK 7762, Ecuador).

B. dombeyana Less. (RMK 9047, Peru).

B. polyacantha Wedd. (RMK 7476, Bolivia).

B. wurdackii Ferreyra (RMK 9259, Peru).

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Chuquiraga avallanadae Lorentz (RMK 9389, Argentina).

C. erinacea Don (RMK 9436, Argentina).

C. hystrix Don (RMK 9416, Argentina).

C. jussieui Gmel. (Solomon 16358, Bolivia).

C. oppositifolia Don (RMK 9404, Argentina).

C. parvifolia (Griseb.) Hieron. (Solomon 16347, Bolivia).

C. rosulata Gaspar (RMK 9417, Argentina).

C. straminea Sandwith (RMK 9378, Argentina).

Dasyphyllum diacanthoides [3]. and as Chuquiragua leucoxylon Poepp. ex Less. (Dr. Nuñez, Valdivia, Chile).

D. sprengelianum (Gardn.) Cabrera (RMK 8045, Brazil).

D. velutinum (Baker) Cabrera (RMK 8357, Brazil).

Schlechtendahlia luzulaefolia Less. (grown from seeds, Montevideo). Details are reported elsewhere [7] and the triterpenes obtained were identified by comparing the 400 MHz ^1H NMR spectra with those of authentic compounds.

Table 2 - Investigated species of the Gochnatiinae which have triterpenes.

Achnopogon virgatus Maguire, Steyerm. & Wurdack
(O. Huber 8690, Venezuela).

Chimantaea mirabilis Maguire, Steyerm. & Wurdack
(O. Huber 8577, Venezuela).

C. similis Maguire, Steyerm. & Wurdack
(O. Huber 8696, Venezuela).

Cyclolepis genistoides Don
(RMK 9357, Argentina).

Hyalis argentia Don

(RMK 9326, Argentina).

Oldenburgia arbuscula E. Meyer

(71) 54, South Africa).

Quelchia bracteata Maguire, Steyerf. & Wurdack

(O. Huber 8678, Venezuela).

Stenopadus sp.

(O. Huber 9009, Venezuela).

Urmenetea extracamensis Phil.

(M. Silva, Chile, unpubl.).

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